

CLAIMS

WHAT IS CLAIMED IS:

1. A method of milling an orthotic device by using
a computer controlled milling tool, the orthotic device
5 defined by a orthotic device upper contour, the method
comprising the steps of:

- a) providing a workpiece defining a mill plane and
a perpendicular axis thereto;
- 10 b) milling the milling tool into the workpiece along
the perpendicular axis to a depth corresponding
to the orthotic device upper contour; and
- 15 c) translating the milling tool relative to the
workpiece in the mill plane along a milling path
while adjusting the depth of the milling tool to
correspond to the orthotic device upper contour
to selectively remove material from the workpiece
for producing the orthotic device therefrom, the
20 milling path being characterized by a plurality
of mill rotations about the perpendicular axis,
successive ones of the mill rotations being
radially further from the perpendicular axis.

2. The method of Claim 1 wherein step c) the milling
tool is translated in the mill plane at a substantially
25 constant speed.

3. The method of Claim 1 wherein step c) the milling
tool is sized and configured to perform a climb cut into
the workpiece.

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4. The method of Claim 1 wherein the milling tool
has a spherical-shaped end mill and wherein step c) the

5 5. The method of Claim 1 wherein the mill rotations
each include at least one elliptical section thereof.

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11. The method of Claim 10 wherein the given ones of the portion of the mill rotations each have a first arced

section and a second arced section disposed adjacent the anterior portion.

12. A method of generating data for controlling a computer controlled milling tool to mill a workpiece to form an orthotic device therefrom having an orthotic device upper contour, the method comprising the steps of:

- a) accessing contour data representative of the orthotic device upper contour, the contour data being relatable to a mill plane and a perpendicular axis thereto; and
- b) generating milling path data using the accessed contour data, the milling path data being representative of a milling path characterized by a plurality of mill rotations about the perpendicular axis, successive ones of the mill rotations being radially further from the perpendicular axis.

13. The method of Claim 12 wherein the milling path data is calculated to translate the milling tool in the mill plane at a substantially constant speed.

14. The method of Claim 12 wherein the milling path data is calculated to configure the milling tool to perform a climb cut into the workpiece.

15. The method of Claim 12 wherein the milling tool has a spherical-shaped end mill and wherein step b) the milling path is calculated to align the spherical-shaped end mill tangentially with the orthotic device upper contour.

17. The method of Claim 16 wherein the mill rotations are generally elliptical-shaped.

19. The method of Claim 18 wherein the given ones of the portion of the mill rotations each have a first arced section and a second arced section disposed adjacent the anterior portion.

21. The method of Claim 20 wherein given ones of a
25 portion of the mill rotations each have an elliptical
section disposed adjacent the posterior portion.

22. The method of Claim 21 wherein the given ones of the portion of the mill rotations each have a first arced section and a second arced section disposed adjacent the anterior portion.

23. A method of milling an orthotic device by using a computer controlled milling tool, the milling tool has a spherical-shaped end mill, the orthotic device defined by a orthotic device upper contour, the method comprising the steps of:

- a) providing a workpiece defining a mill plane and a perpendicular axis thereto;
- b) milling the milling tool into the workpiece along the perpendicular axis to a depth corresponding to the orthotic device upper contour; and
- c) translating the milling tool relative to the workpiece in the mill plane along a milling path while adjusting the depth of the milling tool to correspond to the orthotic device upper contour to selectively remove material from the workpiece for producing the orthotic device therefrom, the milling path being configured to align the spherical-shaped end mill tangentially with the orthotic device upper contour.

24. The method of Claim 23 wherein the milling path being characterized by a plurality of mill rotations about the perpendicular axis, successive ones of the mill rotations being radially further from the perpendicular axis.

25. The method of Claim 23 wherein step c) the milling tool is translated in the mill plane at a substantially constant speed.

26. A method of generating data for controlling a computer controlled milling tool to mill a workpiece to form an orthotic device therefrom having an orthotic device

upper contour, the milling tool has a spherical-shaped end mill, the method comprising the steps of:

- 5 a) accessing contour data representative of the orthotic device upper contour, the contour data being relatable to a mill plane and a perpendicular axis thereto; and
- 10 b) generating milling path data using the accessed contour data, the milling path data being representative of a milling path, the milling path being configured to align the spherical-shaped end mill tangentially with the orthotic device upper contour.

27. The method of Claim 26 wherein the milling path
15 being characterized by a plurality of mill rotations about the perpendicular axis, successive ones of the mill rotations being radially further from the perpendicular axis.

28. The method of Claim 26 wherein step b) the
20 milling tool is translated in the mill plane at a substantially constant speed.

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